

Appl. No. 10/586,869
Amdt. dated July 16, 2008
Reply to Office action of April 24, 2008

REMARKS

Claims 11, 15, 17 and 19-24 remain in this application. Claims 1-10, 12-14, 16 and 18 have been canceled.

Claims 11-24 have been rejected under 35 U.S.C. 112, second paragraph, as indefinite. The claims have been amended in response to each of the examiner's concerns. Reconsideration of the rejection is requested.

Claims 11, 13, 20 and 23 have been rejected under 35 U.S.C. 102(b) as anticipated by Stoecklein et al (US 6,651,950) and claims 11, 12, 20, 21 and 23 have been rejected under 35 U.S.C. 102(b) as anticipated by Auwaerter et al (US 5,697,554).

Applicant notes that claim 14 has not been rejected over the prior art. Claim 11 has been amended to include the language of claims 11, 12 and 14.

Claim 11, accordingly, is directed (with reference to the exemplary embodiment illustrated in applicant's drawing) to a fuel injector 1 for injecting fuel into a combustion chamber 30 of an internal combustion engine, the injector comprising,

an injector body 2,

a nozzle holder 3,

an injection valve member 5 movably received in the nozzle holder 3, the injection valve member having a seat 28 that opens or closes injection openings 29,

a piezoelectric actuator 9,

a first booster piston 11 directly actuated by the piezoelectric actuator 9, and

a second booster piston 19 guided in the first booster piston 11 and connected to the injection valve member 5 for varying pressure inside a control chamber 18,

wherein the piezoelectric actuator 9 is received inside a pressure chamber 7, embodied in the injector body 2, which chamber 7 has an inlet 13 for fuel at system pressure and

wherein the control chamber 18 is defined by a control chamber sleeve 21, an annular face 20 of the first booster piston 11, an annular face 39 of the second booster piston 19, and a plane face 23 of the nozzle holder 3.

Claim 11 differs from that disclosed in Stoecklein et al (US 6,651,950), at least, in that claim 11 requires a piezoelectric actuator received inside a pressure chamber, embodied in the injector body, which chamber has an inlet for fuel at system pressure. In Stoecklein et al, the piezoelectric actuator 3 is in a low pressure chamber 27, but the chamber 27 does have an inlet for fuel at system pressure.

In addition, claim 11 requires a control chamber defined by a control chamber sleeve, an annular face of the first booster piston, an annular face of the second booster piston, and a plane face of the nozzle holder. The examiner reads the claimed "control chamber" on Stoecklein et al's first valve chamber 22. The examiner reads the claimed "control chamber sleeve" on the bore 8 in Stoecklein et al's valve body 5, but the bore 8 is simply a space provided in the valve body 5. The bore 8 is not a "sleeve" under any reasonable interpretation of the word "sleeve." There is, in fact, no "sleeve" disclosed in Stoecklein et al, and thus, no control chamber defined by a control chamber sleeve, an annular face of the

Appl. No. 10/586,869
Amdt. dated July 16, 2008
Reply to Office action of April 24, 2008

first booster piston, an annular face of the second booster piston, and a plane face of the nozzle holder as required by claim 11.

Thus, the claims are not anticipated by Stoecklein et al.

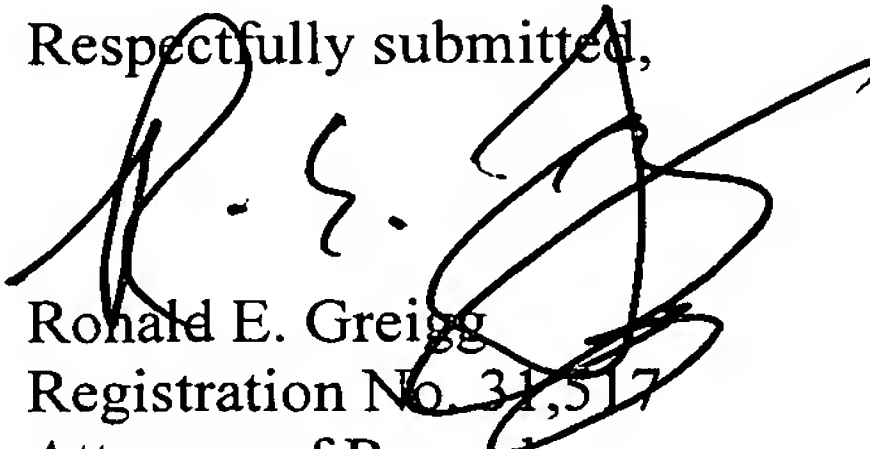
As to the rejection based on Auwaerter et al, the examiner fails to specifically identify the embodiment on which the claims read. The reference describes and illustrates five different embodiments. The applicant should not be forced to guess which embodiment the examiner is looking at. Applicant supposes that the examiner is looking at the embodiment of Fig. 5, since the rejection refers to a spring element 22' found only in Fig 5.

Claim 11 differs from the embodiment of Fig. 5 of Auwaerter et al (US 5,697,554), at least, in that claim 11 requires a control chamber defined by a control chamber sleeve, an annular face of the first booster piston, an annular face of the second booster piston, and a plane face of the nozzle holder. The examiner reads the claimed "control chamber" on Auwaerter et al's "annular space" 41. The examiner reads the claimed "control chamber sleeve" on the housing insert 28 in Auwaerter et al. It is pointed out that the "annular space" 41 is not defined by a control chamber sleeve, an annular face of the first booster piston, an annular face of the second booster piston, and a plane face of the nozzle holder as required by claim 11. Thus, the claims are not anticipated by Auwaerter et al.

The Commissioner is authorized to charge payment of any/all fees associated with this communication to Deposit Account Number 07-2100.

Appl. No. 10/586,869
Amdt. dated July 16, 2008
Reply to Office action of April 24, 2008

Entry of the amendment and allowance of the claims are respectfully requested.

Respectfully submitted,

Ronald E. Greigg
Registration No. 31,517
Attorney of Record
CUSTOMER NO. 02119

GREIGG & GREIGG, P.L.L.C.
1423 Powhatan Street
Suite One
Alexandria, VA 22314

Tel. (703) 838-5500
Fax. (703) 838-5554

REG/JFG/ncr

J:\Bosch\R306612\Reply to 4-24-08 OA.wpd